


# EXHIBIT A

**U.S. Patent No. 7,982,803*****Audio and video synchronizing apparatus and method***

<b>Claim Language (Claim 6)</b>	<b>Evidence of infringement by TCL (50S535)</b>
<p>6. An audio and video synchronizing apparatus comprising:</p>	<p>The Accused TCL televisions include an audio and video synchronizing apparatus.</p> <p>For example, TCL 50S535 television is an apparatus that comprises a display screen for displaying video of digital content and speakers for outputting audio of the digital content.</p> <p><b><u>TCL • Roku TV</u></b></p> <p>User Guide</p> <p>Version 10.0</p> <p><i>For United States</i></p> <p>English</p>  <p>5-Series User Guide (“User Guide”), cover page, available at <a href="https://www.tcl.com/us/en/products/home-theater/5-series/50-class-5-series-4k-qled-hdr-smart-roku-tv-50s535">https://www.tcl.com/us/en/products/home-theater/5-series/50-class-5-series-4k-qled-hdr-smart-roku-tv-50s535</a>.</p>

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*Audio and video synchronizing apparatus and method*

## Adjusting TV settings

You can adjust most picture and sound settings while you are watching a program by pressing STAR \* to open the Options menu. There are some additional picture and sound settings in the Settings menu.

In most cases, the changes you make apply only to the input you are using. Live TV, each HDMI® input, and the AV input have their own settings that the TV remembers when you return to that input. The TV also separately remembers the settings you specify while viewing streaming content.

### Settings menu

Use the Settings menu to adjust overall TV settings. Press HOME  to go to the Home screen menu, and then navigate to Settings > TV picture settings.

You can adjust the following overall TV picture settings from the Settings screen:

- TV brightness – Provide a better viewing experience in darker or brighter rooms. Increases or decreases the TV's general brightness across all TV inputs.

*Note: This setting is identical to the TV brightness setting you can access in the Options menu while watching a program.*

- HDR notification – *On select models only:* Controls whether the TV displays a notification in the upper right corner of the screen for a few seconds when HDR or Dolby Vision content begins to play.
  - On – The TV displays a notification when HDR or Dolby Vision content begins to play.
  - Off – The TV does not display a notification when HDR or Dolby Vision content begins to play.

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Note: This setting does not affect the HDR or Dolby Vision notification that always appears in the program information banner. Press OK while watching a program to open the program information banner.

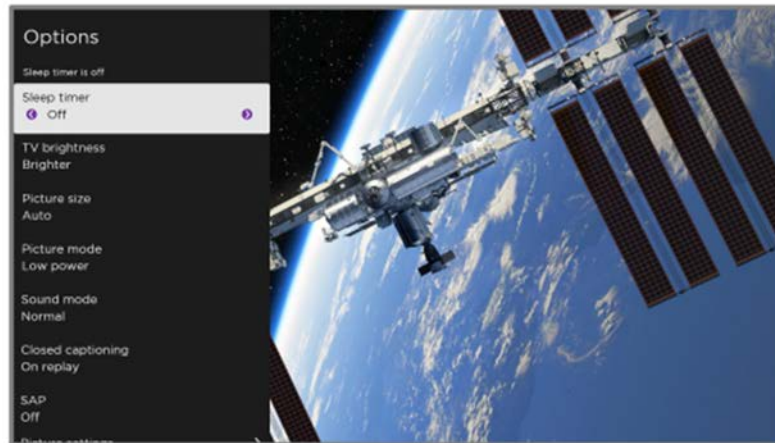
- Settings per input – Lists each TV input. Select an input, and then press STAR \* to display the Options menu where you can adjust the input's settings while watching a live picture and listening to the sound from that input.

Tip: You don't have to go to the Settings menu first—you can display an input's Options menu and adjust its settings whenever you are watching the input by pressing STAR \*.

User Guide, pp. 79-80.

## Options menu

The Options menu for each TV input provides many settings for controlling the appearance of the picture and the quality of the audio. To view the Options menu, press STAR \* whenever you are watching a TV input or streaming a video (except when you are viewing the program information banner). The Options menu is a panel that appears over the left side of the screen:




Typical Options menu

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- Sleep timer – Sets a timer that turns off the TV after the specific amount of time. *This setting remains in effect even if you stop watching the current input.*
- TV brightness – Affects the overall brightness of the picture. *This setting applies across the entire TV; that is, to all TV inputs and is identical to the TV brightness setting under Settings > TV picture settings.*
- Picture size – Adjusts the aspect ratio of the picture, enabling you to view a picture in its original format, or zoom or stretch it to fill the screen. The Auto setting has been found to produce the best picture in most cases.
- Picture mode – Provides picture presets for various viewing preferences. *This setting applies to the currently-selected input only.*
- Sound mode – Adjusts the sound quality output from the TV speakers. *This setting applies across the entire TV; that is, to all TV inputs.* It does not affect the sound quality for headphones, HDMI (ARC) HDMI (eARC), or S/PDIF (TOSLINK) connectors.

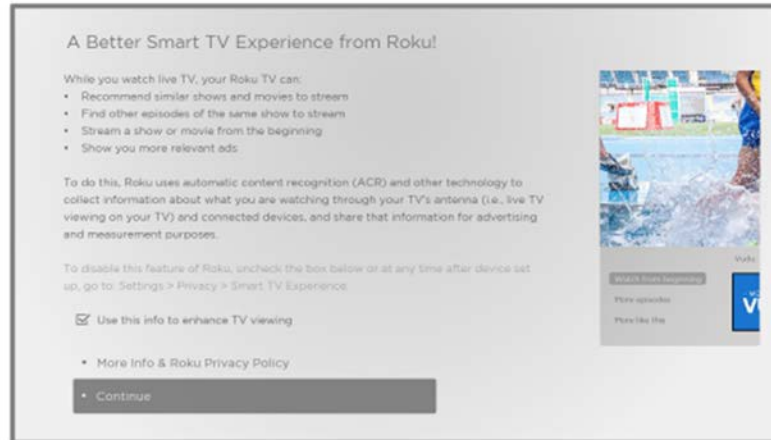
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	<ul style="list-style-type: none"> <li>• Closed captioning – Controls when you see captions. <i>This setting is only offered for live TV, the AV input, streaming <u>content</u> and videos played in the media player. Any set value remains in effect across only these inputs.</i></li> <li>• Live TV – Set captions to off, always on, on only when the TV sound is muted, or on only during instant replay (when Live TV Pause has been enabled).</li> <li>• AV input – Set captions to off, always on, or on only when the TV sound is muted.</li> <li>• Streaming video channel or media player – For streaming content that provides closed captions, set captions to off, always on, on only when the TV sound is muted, or on only during instant replay (for streaming content that supports instant replay). <i>Note that some streaming channels have other methods for turning captions on and off. In these cases, the Closed captioning option does not appear on the Options menu.</i></li> </ul> <p>Note: If <b>REPLAY</b>  is not available on your remote, you can use this feature in the Roku mobile app. For more information, see <a href="#">Roku mobile app</a>.</p> <ul style="list-style-type: none"> <li>• SAP – Selects whether to play a secondary audio program or multichannel television sound, and which choice to play. <i>This setting applies only to live TV on digital channels.</i></li> <li>• Picture settings – Shows the <a href="#">Picture settings menu</a>.</li> <li>• Sound settings – <i>Only on select models:</i> Shows the <a href="#">Sound settings menu</a>.</li> </ul> <p>User Guide, pp. 80-82.</p>
a video signal processing unit processing a video signal that is provided to a display device of video processing equipment;	<p>The Accused TCL televisions include a video signal processing unit processing a video signal that is provided to a display device of video processing equipment.</p> <p>For example, TCL 50S535 televisions are capable of receiving video signals from streaming sources, from media players and/or from cables boxes, and further capable of analyzing the video signals to provide recommendations or relevant advertisements.</p>

**U.S. Patent No. 7,982,803*****Audio and video synchronizing apparatus and method*****Opting in to Smart TV experience**

*Only in connected mode*, the first time you select live TV, an HDMI input, or AV input, your TV offers to enable the Smart TV experience. If you decide to enable it at this time, you're all set to enjoy its recommendations and features.



The Smart TV experience uses automatic content recognition (ACR) and other technology to collect information about what you watch on live TV, and on devices like media players and cable boxes connected to the HDMI or AV inputs. Opting in means that you give permission to analyze the programs you watch for the purpose of making recommendations, as well as showing ads that are more relevant to you.

If you decide not to enable the Smart TV experience at this first opportunity, you can enable it later. Or, if you decide you'd rather not use the feature, you can disable it, but be aware that previously collected information is retained and not deleted.

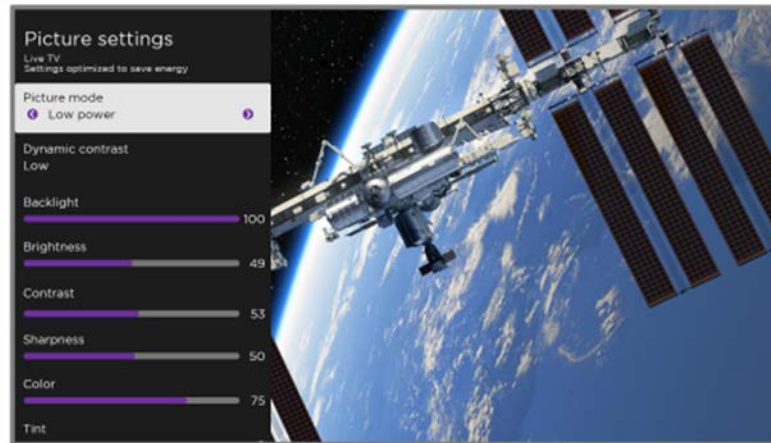
User Guide, p. 48.

As another example, TCL 50S535 televisions are capable of processing video signals and “fine tuning the appearance of the picture.”

**U.S. Patent No. 7,982,803*****Audio and video synchronizing apparatus and method*****Picture settings**

The Picture settings menu for each TV input provides settings for fine tuning the appearance of the picture. All of the settings in this menu apply only to the currently-selected input.

To use the Picture settings menu, first press STAR \* to display the Options menu. Then select Picture settings.



**Typical Picture settings menu**

Note: Some streaming channels assign STAR \* to a different function, meaning it will not open the Options menu. In these cases, use a different channel, such as The Roku Channel, to configure Picture settings. The selected settings remain active for all streaming channels.



**U.S. Patent No. 7,982,803*****Audio and video synchronizing apparatus and method*****Picture settings menu options**

*Note: Picture settings vary by brand and model. Not all settings are available on all TVs. Names of certain settings also vary by brand and might differ from the names listed here.*

- Picture mode – Provides picture presets for various viewing preferences. This setting duplicates the one on the Options menu. When you change the Picture mode, other picture settings adjust accordingly. For example, setting the Picture mode to Vivid sets Brightness, Contrast, Sharpness, and other values to produce a very vibrant picture. Setting Picture mode to Movie changes the settings to produce a picture suitable for enjoying movies in a darkened room. If you make changes to the individual picture settings—for example, Contrast, or Sharpness—these settings are saved for the current input *and* the current picture mode. In this way, you can set HDMI 1 input's Movie picture mode to use different settings than the HDMI 2 input's Movie picture mode and the Live TV input's Movie picture mode. Use Reset picture settings, described below, to return the input's selected picture mode to its original values.
- Local dimming – *Only on select models:* Sets the amount of dimming applied to multiple areas of the screen's backlight intensity. This setting can make dark areas darker without affecting the brightness of light areas.
- Dynamic contrast – *Only on select models:* Automatically adjusts the backlight level to achieve the optimum contrast and prevent excessive differences between light and dark areas of the screen.
- Micro contrast – *Only on select models:* Improves image contrast.
- Backlight - Adjusts the overall light intensity of the screen.
- Brightness – Adjusts the dark level of the picture.
- Contrast – Adjusts the white level of the picture.
- Sharpness – Adjusts the sharpness of edges in the picture.
- Color – Adjusts the saturation of colors in the picture. A setting of 0 removes all color and displays a black and white picture.

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*Audio and video synchronizing apparatus and method*

- Tint – Adjusts the color balance from green to red to obtain accurate colors in the picture.
- Color temperature – Adjusts the overall color tones in the picture from Normal to slightly more bluish (Cool) to slightly more reddish (Warm).
- Frame rate conversion – *Only on select models. Each TV brand uses a different name for this option.* Adjusts the amount of motion processing applied to the video signal. A higher setting results in more smoothing, but can cause undesirable picture artifacts in certain types of content. Each Picture mode has a different default setting.
- Film mode – *Only on select models. Each TV brand uses a different name for this option.* When enabled, this feature reduces “judder” that is often present when 24 frame-per-second movies are upscaled to 60Hz TV standards. Film mode is On by default in Movie and HDR Dark picture modes, and Off by default in other picture modes.
- Blur reduction – *Only on select 120Hz models. Each TV brand uses a different name for this option.* Reduces blur, especially for fast-moving images such as sports.
- Black frame insertion – *Only on select models that also have the local dimming feature. Each TV brand uses a different name for this option.* Reduces motion blur caused by the refresh rate of the screen. Enabling this feature inserts black frames between picture frames in a way that improves the clarity of fast moving objects. It provides an improved viewing experience for video games and sporting events, but reduces the brightness of the picture. You can select settings of Low, Medium, High, or Off to achieve the desired picture quality.
- Game mode – *Only on HDMI® and AV inputs:* Controls whether Game mode is enabled. When On, the TV performs less image processing and has less input lag. When Off, the TV performs more image processing and has more input lag, which is less desirable for action games.
- Reset picture settings – Returns all picture settings for the input’s currently-selected Picture mode to their original values.

User Guide, pp. 85-87.

As another example, TCL 50S535 is capable of displaying video content.

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As another example, TCL 50S535 is advertised as having a High Dynamic Range (HDR) Technology that provides “bright and accurate colors for a lifelike viewing experience.”

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***Audio and video synchronizing apparatus and method***

MODEL 50S535

## **TCL 50" CLASS 5-SERIES 4K QLED DOLBY VISION HDR SMART ROKU TV - 50S535**






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- Superior 4K HDR picture quality
- Wide Color powered by QLED technology
- HDR Pro Pack featuring Dolby Vision
- Contrast Control Zone technology maximizes contrast
- Stream free TV, live news, sports, movies, and more
- AiPQ Engine with Smart HDR, Smart 4K Upscaling and Smart Contrast
- Auto Game Mode for an optimized fast-response gaming experience
- Easy Voice Control works with Siri, Alexa, and Hey Google
- Share videos, photos, and music from your Apple device using AirPlay
- Simple, personalized home screen
- Advanced Digital TV Tuner with Live TV Channel Guide
- FullView edge-to-edge glass design
- Integrated cable management makes your TV setup clean and clutter-free
- Easy-to-use remote with shortcuts to popular channels
- Dual-band WiFi & Ethernet port
- 4 HDMI ports (1 eARC)



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	<h2 style="text-align: center;">A STELLAR VISUAL EXPERIENCE</h2> <p style="text-align: center;">Elevate your home viewing experience with cinema-inspired technologies that bring out every detail, produce accurate color, and deliver breathtaking contrast, all with incredible realism.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p><b>QUANTUM DOT TECHNOLOGY</b> Experience vivid wide color and striking contrast, matching the format of Hollywood content creators.</p> </div> <div style="text-align: center;">  <p><b>DOLBY VISION™ HDR</b> Dolby Vision, the premium HDR experience, offers superior contrast and brighter, more accurate colors.</p> </div> <div style="text-align: center;">  <p><b>CONTRAST CONTROL ZONES™</b> Contrast is optimized across localized zones for striking differences between bright and dark areas of the image.</p> </div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;"> <div style="text-align: center;">  <p><b>4K PICTURE RESOLUTION</b> Brilliant 4K resolution delivers stunning detail and a remarkable visual experience.</p> </div> <div style="text-align: center;">  <p><b>AIPQ ENGINE™</b> TCL's AiPQ Engine optimizes color, contrast, and stunning clarity for an unrivaled 4K HDR experience.</p> </div> </div> <p style="text-align: center;"><a href="https://www.tcl.com/us/en/products/home-theater/5-series/50-class-5-series-4k-qled-hdr-smart-roku-tv-50s535">https://www.tcl.com/us/en/products/home-theater/5-series/50-class-5-series-4k-qled-hdr-smart-roku-tv-50s535</a></p>
an audio signal processing unit processing an audio signal that is provided to an audio device of the	<p>The Accused TCL televisions include an audio signal processing unit processing an audio signal that is provided to an audio device of the video processing equipment, the audio signal synchronized with the video signal.</p> <p>For example, TCL 50S535 televisions are capable of processing audio signals received by the televisions.</p>

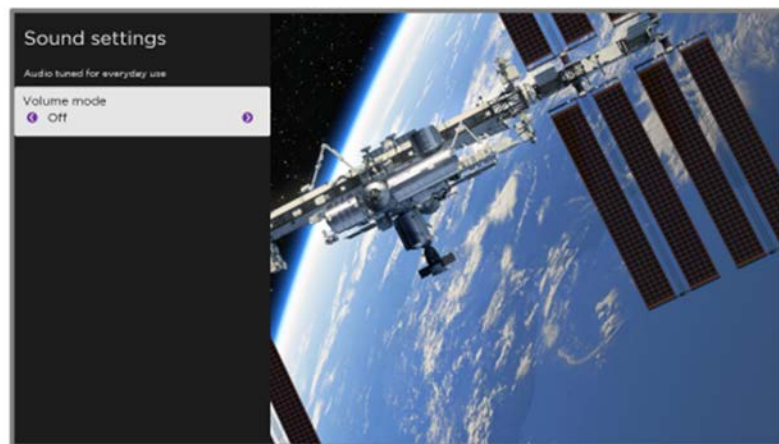
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***Audio and video synchronizing apparatus and method***

<p>video processing equipment, the audio signal synchronized with the video signal; and</p>	<p><b>Adjusting audio/video settings</b></p> <p>While watching video content on any input, press STAR * to display the Options menu. Press UP or DOWN to highlight an option, and then press LEFT or RIGHT to change the setting. To learn about each of the audio and video settings, see <a href="#">Adjusting TV settings</a>.</p> <p>User Guide, p. 66.</p> <p><b>Sound settings</b></p> <p>Your TV model might have any one of the following premium sound settings available in the Options menu:</p> <ul style="list-style-type: none"> <li>• No Sound settings</li> <li>• <a href="#">Roku Smart Soundbar</a></li> <li>• <a href="#">Volume mode</a></li> <li>• <a href="#">Dolby® Audio Processing</a></li> <li>• <a href="#">Sonic Emotion™ Premium</a></li> </ul> <p>User Guide, p. 88.</p>
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**U.S. Patent No. 7,982,803*****Audio and video synchronizing apparatus and method*****Volume mode (select models only)**

To access Volume mode, first press STAR \* to display the Options menu, then select Sound settings<sup>1</sup>.



Sound settings menu for models with Volume mode

*Tip: Some streaming channels assign STAR \* to a different function, meaning it will not open the Options menu. In these cases, use a different channel, such as The Roku Channel, to set the Volume mode. The selected mode remains active for all streaming channels.*

**Sound settings menu - Volume mode**

- Off – Volume mode is inactive and content volume is unmodified.
- Leveling – Provides a consistent volume level across different types of content, so that you need not change the volume every time you switch channels or when a commercial comes on.
- Night – Soft sounds, such as whispers, are increased while loud sounds, such as explosions, are decreased, making it easier to hear your TV at night without disturbing others.
- Dolby AC-4 Dialog Enhancement – *Only on select models:* Select On for AC-4 to enhance the dialog in content that supports the AC-4 audio format.

User Guide, p. 100.

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As another example, the TCL 50S535 television is capable of processing an input audio in a particular format, converting it to another format, and outputting it to an external sound system, as discussed further below with reference to the last claim limitation.





**U.S. Patent No. 7,982,803*****Audio and video synchronizing apparatus and method*****Choosing an audio format**

After making the required HDMI® ARC, eARC, or S/PDIF optical connection, go to Settings > Audio > Digital audio format and select the audio format to use.

Choosing Auto is the easy solution, and generally provides good results. However, if you have a high-end sound system and want to make sure you are getting the best sound quality available in the programs you are watching, you can choose another setting.

- Auto – Automatically detects the incoming audio format and transcodes it to a compatible available format for the audio output (ARC, eARC, or S/PDIF).
- Passthrough – Passes through the input audio to the connected receiver without transcoding, sometimes resulting in better audio quality especially for high-end audio formats such as those that take advantage of the higher bandwidth of eARC, including Dolby MAT and Dolby Digital Plus 7.1, among others.
- Stereo – Always outputs stereo, regardless of input audio format.
- Custom – When selected, reveals the following additional options for Dolby and DTS audio:
  - Dolby – Converts all input formats to either Dolby Digital or Dolby Digital Plus, according to the option you choose:
    - Dolby Digital – Converts all input formats to Dolby Digital.
    - Dolby Digital Plus – Converts all input formats to Dolby Digital Plus.
  - DTS – If you select On, converts all audio sources *except DTS* to Dolby Digital or Dolby Digital Plus according to the Dolby option you selected. If DTS is detected and the receiver supports DTS, this option passes through the DTS audio without modification. If you select Off, the TV does not detect or pass through DTS audio.

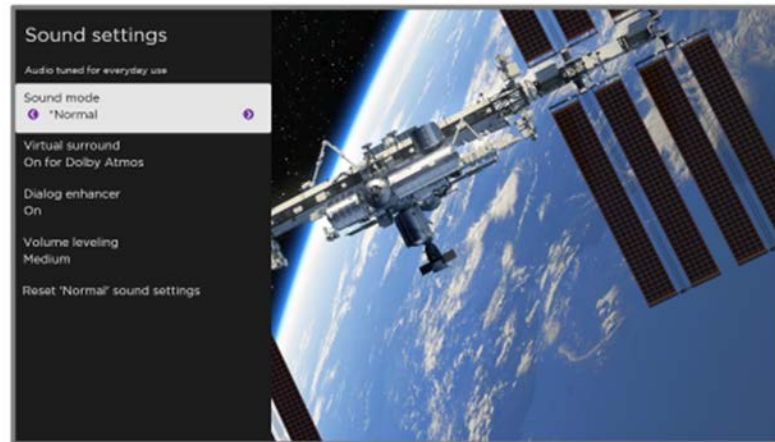
User Guide, p. 138.

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## Sound settings – Dolby® Audio Processing (select models only)

Each TV input has separate settings for fine tuning sound quality. All of the settings in this menu apply only to the currently-selected input. To access the DAP settings, first press STAR \* to display the Options menu, then select Sound settings.



Sound settings menu for models with Dolby® Audio Processing

Tip: Some streaming channels assign STAR \* to a different function, meaning it will not open the Options menu. In these cases, use a different channel, such as The Roku Channel, to configure Dolby® Audio Processing. The selected settings remain active for all streaming channels.

## Sound settings menu– Dolby® Audio Processing

- Sound mode – Select from among various preset sound modes to improve speech, make music sound its best, boost bass or treble, or simulate a theater. Use Reset audio settings, described below, to return the input's current settings to their original values.
- Virtual surround (*Only on select models*) – Options vary by TV model. Simulates surround sound that otherwise would require installation of a surround sound audio system. Sometimes, the effect interferes with dialog clarity. Use the Dialog enhancer option to compensate.
- Dialog enhancer – Improves the clarity of speech when on.
- Dolby AC-4 Dialog Enhancement – *Only on select models*: Select On for AC-4 to enhance the dialog in content that supports the AC-4 audio format.

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	<ul style="list-style-type: none"> <li>Reset sound settings – Returns Virtual surround and Dialog enhancer settings to their default settings for the selected Sound mode.</li> </ul> <p><b>Expert Picture Settings (4K models only)</b></p> <p>4K (UHD) TV models have additional picture settings for demanding home theater enthusiasts. Expert Picture Settings include gamma, noise reduction, 11-point white balance adjustment, and extended color space management.</p> <p>You can access Expert Picture Settings only by using the Roku mobile app on an iOS® or Android™ mobile device. For more information, go to the following link on the Roku web site:</p> <p><a href="https://go.roku.com/expertpicturesettings">go.roku.com/expertpicturesettings</a></p> <p>User Guide, pp. 92-93.</p>
<p>an output selecting unit selecting an audio signal that is output to an external device that is not part of the video processing equipment,</p>	<p>The Accused TCL televisions include an output selecting unit selecting an audio signal that is output to an external device that is not part of the video processing equipment.</p>

**U.S. Patent No. 7,982,803*****Audio and video synchronizing apparatus and method*****Connecting external equipment with an HDMI® cable**

If possible, connect your devices using HDMI® cables (not provided). They help to provide the best video quality and also carry audio signals, so that only one cable is needed. For better picture quality, we recommend that you use cables designated as High Speed HDMI® Cables.

Tip: You might need to configure the device to send its signal through its HDMI® connector.

The connector labeled HDMI (ARC) has the additional ability to use the audio return channel to send digital audio to a receiver or soundbar, as explained in Connecting an AV receiver or digital soundbar. Only on select models: The connector labeled HDMI (eARC) provides the same functionality as the HDMI ARC connector, plus the ability to pass through full-resolution sound formats such as Dolby Atmos and DTS:X from and to devices that support these formats, without additional processing by the TV. Additional details are provided in Choosing an audio format.



User Guide, p. 11.

wherein the output selecting unit selects a first audio signal that bypasses the audio signal that is input to the audio signal processing unit as the audio signal that is output to the external device or selects a second audio signal output from the audio signal processing unit as the audio signal that is output to the external device.

The Accused TCL televisions include an output selecting unit ... wherein the output selecting unit selects a first audio signal that bypasses the audio signal that is input to the audio signal processing unit as the audio signal that is output to the external device or selects a second audio signal output from the audio signal processing unit as the audio signal that is output to the external device.

For example, the accused TCL 50S535 television has a “passthrough” function where audio signals having particular format, such as Dolby Atmos and DTS:X, are outputted to an AV receiver or digital soundbar “without additional processing by the TV.”

**U.S. Patent No. 7,982,803*****Audio and video synchronizing apparatus and method*****Connecting external equipment with an HDMI® cable**

If possible, connect your devices using HDMI® cables (not provided). They help to provide the best video quality and also carry audio signals, so that only one cable is needed. For better picture quality, we recommend that you use cables designated as High Speed HDMI® Cables.

Tip: You might need to configure the device to send its signal through its HDMI® connector.

The connector labeled HDMI (ARC) has the additional ability to use the audio return channel to send digital audio to a receiver or soundbar, as explained in Connecting an AV receiver or digital soundbar. Only on select models: The connector labeled HDMI (eARC) provides the same functionality as the HDMI ARC connector, plus the ability to pass through full-resolution sound formats such as Dolby Atmos and DTS:X from and to devices that support these formats, without additional processing by the TV. Additional details are provided in Choosing an audio format.



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The accused TCL 50S535 television has an audio setting called “Auto” where audio signals are transcoded into a format that is compatible with an external sound system.

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After making the required HDMI® ARC, eARC, or S/PDIF optical connection, go to Settings > Audio > Digital audio format and select the audio format to use.

Choosing Auto is the easy solution, and generally provides good results. However, if you have a high-end sound system and want to make sure you are getting the best sound quality available in the programs you are watching, you can choose another setting.

- Auto – Automatically detects the incoming audio format and transcodes it to a compatible available format for the audio output (ARC, eARC, or S/PDIF).
- Passthrough – Passes through the input audio to the connected receiver without transcoding, sometimes resulting in better audio quality especially for high-end audio formats such as those that take advantage of the higher bandwidth of eARC, including Dolby MAT and Dolby Digital Plus 7.1, among others.
- Stereo – Always outputs stereo, regardless of input audio format.
- Custom – When selected, reveals the following additional options for ~~Dobly~~ and DTS audio:
  - Dolby – Converts all input formats to either Dolby Digital or Dolby Digital Plus, according to the option you choose:
    - Dolby Digital – Converts all input formats to Dolby Digital.
    - Dolby Digital Plus – Converts all input formats to Dolby Digital Plus.
  - DTS – If you select On, converts all audio sources *except DTS* to Dolby Digital or Dolby Digital Plus according to the Dolby option you selected. If DTS is detected and the receiver supports DTS, this option passes through the DTS audio without modification. If you select Off, the TV does not detect or pass through DTS audio.

*Note: DTS audio formats are meant to be used with ARC, eARC, or S/PDIF connections to a DTS-capable home theater receiver. If you enable DTS when using the TV speakers, you might not hear any audio.*



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User Guide, p. 138.

For example, when the input audio is in Dolby Atmos format, and the Auto audio setting is selected, and the audio is outputted to a Denon AVR-S960H AV Receiver that is capable of decoding Dolby Atmos, then the accused TCL 50S535 television passes the audio signal to the receiver without modification.



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As shown below, the “Auto” setting is selected on the accused TCL 50S535 television, and Dolby Atmos can be outputted to the Denon AV Receiver.





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When Dolby TrueHD audio, which includes the Dolby Atmos signal, is inputted to the accused TCL 50S535 television, the same Dolby Atmos signal is outputted to the Denon AV Receiver.



Alternatively, for example, when the input audio is in Dolby Atmos format, and the Auto audio setting is selected, and the audio is outputted to a Sony STRDH590 AV Receiver that is not capable of processing Dolby Atmos, then the

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accused TCL 50S535 converts the audio signal into a format compatible with the Sony receiver, e.g., Dolby Digital Plus.



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4K ULTRA HD AND BLU-RAY DISC™ CONTENT SPECIFICATIONS	
4K UHD MAIN FEATURE*	2160p Ultra High Definition 16x9 2.4:1. Dolby Atmos: English, English Descriptive Audio 5.1, Dolby Digital: Français 5.1 (Dubbed in Quebec), Español 5.1. Subtitles: English SDH, Français & Español.
BLU-RAY MAIN FEATURE*	1080p High Definition 16x9 2.4:1. Dolby Atmos: English, English Descriptive Audio 5.1, Dolby Digital: Français 5.1 (Dubbed in Quebec) & Español 5.1. Subtitles: English SDH, Français & Español.
SPECIAL FEATURES*	Special Features are not in 4K or HDR and may not be in High Definition. Audio & subtitles may vary.

**U.S. Patent No. 7,982,803*****Audio and video synchronizing apparatus and method***

As shown below, the “Auto” setting is selected on the accused TCL 50S535 television and the audio format available for the Sony AV Receiver includes Dolby Digital Plus (“DD+”) but not Dolby Atmos.





U.S. Patent No. 7,982,803

*Audio and video synchronizing apparatus and method*

When Dolby TrueHD audio, which includes the Dolby Atmos signal, is inputted to the accused TCL 50S535 television, the audio signal is converted to DD+ and outputted to the Sony AV Receiver.



**U.S. Patent No. 7,982,803**

### *Audio and video synchronizing apparatus and method*

As another example, when the input audio is in DTS-HD MSTR format, and the Passthrough audio setting is selected, and the audio is outputted to Denon AVR-S960H AV Receiver, which is capable of decoding DTS audio format, then the accused TCL 50S535 television passes the audio signal to the receiver without modification.



**U.S. Patent No. 7,982,803*****Audio and video synchronizing apparatus and method***

As shown below, the “Passthrough” setting selected on the accused TCL 50S535 television and the audio format that is available for the Denon AV Receiver includes DTS-HD Master Audio.





**U.S. Patent No. 7,982,803*****Audio and video synchronizing apparatus and method***

When the DTS-HD Master audio signal is inputted to the accused TCL 50S535 television, the same DTS-HD Master Audio (“DTS:X MA”) signal is outputted to the Denon AV Receiver.



Alternatively, for example, when the input audio is in DTS-HD MSTR format, the Passthrough audio setting is selected on the accused TCL 50S535 television, and the audio is outputted to TCL TS8282-NA soundbar, which is not

**U.S. Patent No. 7,982,803**

### Audio and video synchronizing apparatus and method

capable of decoding DTS audio format, then the accused TCL 50S535 television converts the audio signal to PCM Audio format and outputs it to the TCL soundbar.





**U.S. Patent No. 7,982,803*****Audio and video synchronizing apparatus and method***

As shown below, the “Passthrough” setting is selected on the accused TCL 50S535 television and the audio format that is available for the TCL TS8282-NA soundbar does not include DTS.



**U.S. Patent No. 7,982,803**

***Audio and video synchronizing apparatus and method***

When the DTS-HD Master audio signal is inputted to the accused TCL 50S535 television, the audio signal is converted to PCM Audio format and outputted to the TCL soundbar.

